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"POINTILLISM" AS A CARTOGRAPHIC TECHNIQUE

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Maps are the basic tools of geographical understanding; yet while geographers have been progressing rapidly toward more accurate and greater detailed knowledge of areas, cartography has, in many instances, failed to keep pace. All too frequently we have relied upon cartographic methodology which promotes erroneous areal relationship concepts. Two very common map techniques of this type are, hypsometric tints to represent altitude and the use of bold contrasting lines for boundaries, which are based upon interpretation. Many are the school children who assume that on a trip from Kansas City to Denver one makes a stairway ascendance passing over literally level plains separated by two or three 1,000 ft. vertical steps. In like manner I would point to the boundary of a well-known area such as the Corn Belt. This boundary, upon which even geographers cannot agree, means an abrupt change in farm economy to many map users; while no doubt the cartographer, or geographer, who drew the line meant it to represent the middle of a zone of transition many miles wide. Not only are such boundaries often misunderstood by the average map reader, they are in fact too often regarded by many of our colleagues as gospel.

Cartographers have continued using these techniques not only because they are accepted -- and too often we hesitate to break with precedent -- but also because they lend themselves to rapid and easy compilation and drafting. It is certainly much easier to draw lines around areas and fill these areas in with solid patterns or colors, than it is to blend shades from one to the other.

We know that delicate shadings of color are possible through the use of the airbrush, and that some fine examples of this technique have been published in recent years. Almost without exception, however, these examples have been in terrain representation. Transitional shading has been used less frequently and much less effectively on other types of maps. This paper is the result of experimentation, attempting to find a more satisfactory method of pattern or color blending on subject matter maps based upon statistical information.

Color psychologists have demonstrated by experimentation that if a color is broken up into component parts and these component colors are presented in small dots, the sensation of the original color will be obtained if it is viewed at a distance. The eye is unable to resolve the individual dots, and if the relative area and correct balance are

maintained, the juxtapositional mixture of the component colors allows accurate duplication of the original color. Artists Sisley, Seurat, and others have used juxtapositional color mixture in both landscapes and portraits. The three or four-color offset printing process is somewhat similar to this technique, although there is frequently superimposition as well as juxtaposition of dots.

Cartographic application of "pointillism" or juxtapositional color mixture, may provide a possible solution to the problem of transitional shading on subject matter maps. If separate colors are assigned to each phenomenon to be mapped, and then these colors are applied as dots in their true position on the map, a composite of these dots will form a distinctive color. As the distributions of the phenomena being mapped change, the balance between the colored dots will change and new distinctive colors will result. Each area having its own distributional pattern, will have its own individual color. Further, if the dots can be made large enough to be easily seen by the eye on close inspection, the resulting map will have dual utility since a great amount of detail will be available close at hand, while at a distance color mixture will result in larger areal pattern.

To test the cartographic application of "pointillism" a map of crops harvested in the United States in 1949 was chosen, because the cropping patterns are complex, and also because there is need for more realistic presentation of crop distributions. In addition, work on this distribution is made considerably easier as a result of the fine map prepared in 1950 by Marshner which locates cropped land in the United States.

The first step in preparing the test map was that of assigning colors to each crop to be represented and to decide upon size and value of dot. Colors were assigned with the following in mind:

1. Colors should remind the map reader of the crop which they represent.
2. High value, low acreage crops such as tobacco or truck, should be of more intense hue than the more extensive and widely grown crops.
3. Selected minor crops, such as peanuts or soybeans, which tend to change the crop character of broader areas, should have colors of moderately high intensity.

As a result the following colors were chosen:

Yellow - small grains	Light blue - cotton
Orange - corn	Dark green - soybeans
Tan - sorghum	Brown - peanuts
Light green - hay	Red - tobacco

Purple - fruit Black - truck
Gray - other crops

The map was constructed at a scale of 1:2,500,000 using dots of .1" diameter for each 10,000 acres, the area of the dots being on the same scale as the map. Acreages for each crop were taken from the Census of Agriculuure for 1950 and plotted county by county.

A series of slides demonstrating color blending at various distances indicates the desirability of further experimentation with "pointillism" a: a cartographic technique. A number of difficulties which must be overcome before it can be accepted are:

1. Need for further tests using different colors. Loss of color distinction is too great in areas where dots are isolated.
2. Need for experimentation on other scales and by printing. This test would have been more successful on a smaller scale; this scale was chosen to expedite rendition. It is extremely difficult to keep colors the same from one part of the map to another and particularly so when Wrico, LeRoy, or Paysant pens are used to make dots. Eleven colors in Drafting ink make too close gradiations to allow great change in value.
3. The method requires extremely accurate and therefore costly reproduction.

On the credit side "pointillism" has the following to recommend its further use as a map technique:

1. Excellent representation of detail which gives the map reader the advantage of optical plus intellectual memory. An example is variations in the wheat belts where second or third crops are completely different. Thus significant differences become readily apparent in areas usually considered to be most similar. Flat tones would render these areas similarly but the differences are more readily apparent and more easily remembered because you can see them. This is particularly desirable for the untrained map user.
2. Transitions are accurately rendered since changing dot balances are achieved from statistical data plotted accurately. There is a minimum of subjective interpretation once the colors are chosen, and this results in much more accurate representation of the distributions being mapped.
3. The same map fulfils several different needs and therefore has greater utility.

In conclusion it might be said that for those who feel boundaries are necessary or desirable, addition of them to the map will not detract from its usefulness and certainly the technique will do much to improve the map user's understanding of both interpretive boundaries and the transitional nature of many distributions.

THE RELIEF MAP

Joseph E. Williams
Stanford University

This paper deals with two-dimensional large and small scale relief maps on which some colors and shading are used to give an illusion of actual relief. Atlas, wall and sheet maps are included but the paper does not deal with models or maps which have been pressed into a third dimension. The purpose of the study is to compare those maps which use only altitude tints with the European maps which use many devices to show relief.

After one hundred and twenty-five years and many international meetings, color systems are as variable as color itself. At times cartographers have debated the merits of hypsometric tints, oblique or vertical shading, "farbenplastik und shattenplastic", spectral colors, and descending or ascending order of color saturation. Some schools preferred to use "the higher the darker" and others "the higher the brighter". Perhaps the discussions reached their height with the controversy over the work of Leutzinger, Peucker, Haack, and Bruckner between 1890 and 1910.

The planimetric map with contours is the product of civil engineers or photogrammetrists and satisfies their needs well, but for anyone else there appears to be a need for some type of visual interpretation. This was shown by the popularity of the hachure maps of Lehmann and Dufour during the nineteenth century even though Buache had used contours in 1737. The use of color to interpret relief was started in 1828 by von Hauslab and has continued until the present day.

In Germany, Austria and Switzerland, the official maps followed the contour method with a minimum of color and shading. The private cartographers such as Justus Perthes, followed the Sydow system with brown hachures in the mountains, a green lowland, and at times red-brown for extreme heights. This system produced very dramatic physical wall maps which carried the picture of relief to large audiences. Switzerland, in private cartography favored the scheme of the "higher the lighter the brighter" and Kümmerly and Frey together with Orell Fussli have given the world the finest examples of this cartographic technique. For example, there is the work of Hermann Kümmerly on the wall map of Switzerland scale 1:200,000, 1936, Kümmerly and Frey, Bern, on which the Alps stand out in bold relief in white with brown shadows, on an olive green lowland. The few colors used on this map are very effective because they follow some part of the natural spectral

color sequence. Likewise the Schulerkarter des Kantons published by Kümmerly and Frey 1932 on a scale 1:100,000 employs part of natural color sequence with northwest lighting. Here there is more color with orange effectively used in the highlands. All of these Swiss maps use a combination of contours, many spot heights, some portion of the spectral color sequence, rock or cliff drawing and oblique illumination, yet the cultural detail is not obscured. At present Edward Imhof is carrying forward this excellent Swiss technique and has given us some recent maps in the new 1:50,000 official series for Switzerland with effective hill shading. Imhof has just completed a very fine atlas and he has published an explanation of his technique. He used colored shading to give form to relief while some of the minor landforms are accentuated by selective coloring pluss cliff drawing with pen. The shaded side is more darkly colored than the lighted side. Steep slopes are strongly colored and rolling hills are lightly tinted to indicate exact form and character.

French maps at 1:50,000 and the Swiss Siegfriedkarte 1:50,000 colored editions, show this method very well. The French went particularly far in color shading with a vertical shading of bistre and àn oblique shading from the northwest in a purplish grey. The maps of Norway 1:250,000 with layer tints in pale green and buff, and oblique hill-shading from the west in greyish purple are among the best maps using color for relief.

The British Ordnance Survey uses many color systems to portray relief, such as the intricate colored hachures and tint arrangement on the fifth relief edition of the one-inch-to-the-mile map. But it appears that most British maps use the system of grading from tan in the hills to dark brown in the mountains with very little hill shading.

Only very recently have government mapping agencies or the private map companies in the United States done anything with combining color tints, hill shading, and cliff drawing. Our Geological Survey maps such as the quadrangles of the United States are now being published in shaded relief editions. It is usually with olive green lowlands and brown or red-brown shaded highlands. The new 1:250,000 series of relief maps for the United States has the relief in tones of grey. Some private companies are printing shaded relief maps as airway route maps and automobile road maps, such as the work of Hal Shelton for Jeppeson Company. He starts with the color of the landscape as seen from the air and then adds relief shading to bring out the land forms. Richard Harrison in his Atlas Look at the World has given us some very fine small scale maps with oblique views of large areas of the world. His color scheme is from dark blue to yellow green and upwards through tan to a bright yellowish-brown with extensive use of oblique shading and actual form drawing.

Careless use of the von Hauslab hypsometric tint system in this country has resulted in abrupt color changes, for instance at the 5,000 or 8,000 feet contour line. As Erwin Raisz points out: "With modern engraving methods it is possible to make merged altitude tints, gradually going over from one color to another." Practically none of the official or private map makers in this country have heeded his advice. Professor Karl Peucker of Vienna combined altitude tints, contour lines, oblique violet shading and rock drawing to produce very dramatic effects; and again to quote Erwin Raisz, "This is perhaps the most advanced method of showing relief at the present time." Max Eckert saw Peucker's work as heralding a new era in topographical interpretation, but the new era dawned and came to fruition only in Europe. It has barely dawned in this country with the excellent work of a few men like Raisz, Harrison, and Shelton. It is not the fault of these cartographers but the lack of courage of those companies which control the distribution of maps in the United States. Our public cannot learn to know good maps unless they are produced and distributed.

Cartographers are partly to blame because they draw maps but do not write about them. They do not inquire into physical principles behind the color combinations which they use. The effectiveness of the color combination in producing the desired stereographic quality may be the result of the brightness of a color rather than the hue. If it is brightness, then a dark color on the highest elevation would defeat the purpose of its use. We could submit relief maps to a quantity of reflected light test and obtain a profile across them which would improve our ways of approaching the problem. So far as I have been able to ascertain no one has set up a group to view maps as a display problem in psychology. Since most of us are interested in teaching, it seems that this is an important aspect of this problem. Recently a layman of Switzerland described in detail the plan of the Rhone and Rhein Valleys of his country with the position and shape of the glaciers and peaks correct. I asked, "have you climbed or flown over your country?" He said "no, but I remember the plan from the wall maps in my school room." No American can give you such a picture of the western mountains from a generalized altitude tint map. It simply defies such interpretation.

When depicting a hill or mountain range, the concept of mass needs to be developed. If we color a pyramid with spectral colors, it is noted that blue, green, and yellow-green create the impression of mass. The yellow appears to have little or no mass while the red which was put on the apex, the smallest actual mass of the pyramid, appears to be more massive than the yellow area. This effect is apparently due to the degree of color saturation. Since hills and mountains decrease in

mass from base to top, then maps should also convey the same impression. But if on the map, the top of the hill is crowned with a darker color than exists half way up the slope; the result is an hour glass effect.

Brightness or refrangibility is a final attribute of color which aids in the lift or stereographic effect of colors. The color that reflects the most light will cause the eye to bring that area more quickly into focus, giving it the appearance of standing nearer. The darker colored areas will tend to recede into the background. This appears to indicate that the "higher the darker" of Lehmann should give way to the "higher the brighter" of the Swiss school.

It appears that hue or color, refrangibility or brightness, color saturation, and visibility, all tend to have some bearing on how the eyes interpret a map. It is further recognized that shading which advances toward brightness aids in the stereographic effect. Either oblique or vertical shading and perhaps seventy-five percent of the plasticity to the map. Both color and shading should be applied in light tones in order that the cultural detail may show through.

From this discussion it is quite obvious that there are two approaches to the problem of relief; one is the scientific contour method of the engineer, the other is the concept of form in the terrain as seen by the cartographic artist. Further, the artist-cartographer has a wide range of uses to be considered before he can adapt a particular color sequence to fit a given situation. Those on the artistic side of the problem may never be regimented to the point of standardizing a definite sequence of colors. However, there seems to be a gradual shift from the "higher the darker" to "the higher the brighter and lighter" with either vertical or oblique hill shading.

It will be readily noticed that on the hypsometric map of the United States not even the trend of the landforms can be discerned. All the area from Reno to Denver appears like a very flat plateau. No erosion surfaces show on the Great Plains or in the Mississippi Valley. There are no parallel ridges to the Appalachians or no Fall Line on the East Coast. All these data can be compiled from the new sheet maps being published by the Geological Survey. This not only applies to our own country but to a greater degree in our maps for foreign countries.

In atlases, sheet maps, and wall maps Europeans excell us in every single product. Swiss and German maps have led the field for years. Universities can buy foreign maps and learn how to use them but teachers' colleges add lower schools need improved maps of all kinds which are readily available in this country. I should like to urge cartographers to study the problem of relief maps and attempt more standardization of basic principles and procedures.

TOWARD A UNITY OF CARTOGRAPHICAL FORMS AND GEOGRAPHICAL CONTENT

Allen K. Philbrick
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Are there principles which may serve as guideposts for both geographers and geographical cartographers? This is a fundamental question because not only is a picture worth a thousand words but the interpretation of phenomena geographically depends upon visualization by means of maps.

A successful map within the context of a geographic purpose requires flexible judgment in the decisions which together constitute design. It is absolutely essential for both geographers and specialists in geographical cartography to understand the principles which weld the indissoluble unity of cartography with geography. Ten principles common to both fields may be formulated as follows:

1. The real world is indivisible.
2. All visualization of phenomena is generalized.
3. All generalization is proportional to scale.
4. The form of visualization is suggestion.
5. Visualization depends upon contrast.
6. Contrasts are gradations of change.
7. Visualization of parts in relation to the whole depends upon balance.
8. All phenomena are not of equal importance.
9. All phenomena are repeated with variations.
10. The ideal of all expression is to say the most with the greatest economy of means.

1. The Principle of Unity

The real world is indivisible. Both the geographer and geographical cartographer face the intellectual task of visualizing and understanding the activities of men in their local as well as their wider settings. Both face the fact that no phenomena may be considered for itself alone out of context with others with which it is related. The geographical cartographer must visually express significant associations of phenomena to scale in space within the confines of the practical limitations of graphical possibility. His efforts will be futile without a unity between graphical forms and geographical content. Intellectually it is the same principle of unity whether applied to graphical composition or the meaning of the map. The judgments involved in both geographic thought and graphical practice, while different as to specifics,

are identical in principle. The study of phenomena in association together on the earth's surface no less than the visualization of phenomena in association together on a map make common use of the principle of unity.

Effective judgment based on the principle of unity is made difficult by the unfortunate tendency to regard the cartographer as merely the craftsman or technician concerned with the solution of the practical problems of visualization while the geographer is regarded as the scholar concerned with concepts and interpretations. This distinction finds expression in the existence of a wide range of professional "schizophrenia," so to speak. It is urgent that the parallel application of principles to both geographic thinking and graphical composition be more widely appreciated and practiced in our profession. Geography without cartography would be a weak subject. Cartography without geography is weaker still.

Application of the principle of unity means that every decision, substantive or compositional, in the making of a map finds its final for solution or compromise in the "Supreme Court" of geographic purpose. It means, furthermore, a corollary proposition. Significant geographical generalization involves either "mind's eye" or actual visualization on paper of phenomena to scale in a spatial setting.

2. The Principle of Generalization

Stated as a principle, all visualization of phenomena is generalized. One cannot reproduce the whole of reality. One must, accordingly select what is to be visualized. This principle is applied in both geographical classification as well as the problems of graphical composition.

Problems of generalization are common to all knowledge. Special geographical-cartographical problems of generalization arise from the special role of the map for geography. The map serves not only as a depository for material to be dealt with geographically but is also a means of isolating and to a degree controlling the variables in a complex series of elements of reality the geographer seeks to understand.

There is another side to the principle of generalization which is inseparable from considerations of scale.

3. The Principle of Scale

Stated as a principle all generalization is proportional to scale. Not only must phenomena be generalized topically in the sense

of reducing them to or arranging them in a class or classes, but the degree of detail varies with respect to both the scale of thinking and the physical scale of map-to-earth measurements. The degree of visual generalization varies within certain fairly fixed limits at different scales and in terms of appropriateness to substantive purposes. A solution in a particular case will reflect considerations of both the principles of generalization and of scale.

4. The Principle of Suggestion

The Form of Visualization is Suggestion. As a result of the necessity imposed by the impossibility of reproducing the whole of reality, those who have practiced the graphic arts most successfully have been those who best understood and mastered the principle of suggestion. It is possible by suggestion, leaving the rest to the imagination, to reproduce far more of the total impression of reality than could possibly be copied or photographed even with the most advanced modern technology.

To give rise to thought or ideas through association by visualization of associated phenomena characteristic of an area is to employ the principle of suggestion substantively in the field of geography. To compose the visualization of such phenomena on a map for that purpose requires the application of the same principle of suggestion in geographical cartography. Since every line on a map is a symbol, including the lettering, suggesting the real objects for which they stand it is apparent that the principle of suggestion has very general application indeed.

5. The Principle of Contrast

The fact that the human eye registers images by reflected light depends, of course, upon contrast. There is little need to expand the functional parallelism between conceptual and graphical contrast, except to point out in this context how basic to geographic thought the principle of contrast is in the differentiation of occupance in one place, one area, or one region from that of another. Accordingly areal differentiation is graphically expressed through contrasts in size, shape, interval, attitude, color, value, intensity, and connotative suggestion of symbols selected by the geographical cartographer.

6. The Principle of Gradation

Contrasts are gradations of change. The geographer is rarely able to ignore the fact that contrasts from place to place are usually gradual. Hence the gradation of phenomena in area is usually an integral part of the record of the differences from place to place. Yet graphically the visualization of a series of gradations contains within it the very

negation of contrast. With every increase in the number of distinctions made within a gradation the contrast between individual distinctions diminishes. The design of a set of patterns which will grade evenly in steps from light to dark at the same time that each will remain distinctly contrasted from the next requires a nice adjustment of the principle of contrast with that of gradation. As a consequence, control of the visual pattern which results from the selection of class intervals as well as the patterns or colors assigned to the separate meanings of each step in a gradation is a tool for the manipulation of variables and a responsibility not to distort relative truth or engage in either deliberate or guileless deception.

7. The Principle of Balance

Visualization of the parts in relation to the whole depends upon balance. From the standpoint of both substance and composition it is this principle which makes possible the design of one section of a map so that it carries its own weight but does not overshadow another. It is consideration of balance which determines weights of lines, darkness of patterns, or brilliance and value of colors with a due consideration of the sizes and meanings of the areas they are to cover, the sizes and types of lettering, and so on through the host of symbols which must be balanced together within a border to serve a single or multiple purpose.

8. The Principle of Emphasis

All phenomena are not of equal importance. As in the case of contrast and gradation, the principle of emphasis is paired with its opposite, balance. The substantive selection of data for analysis implies the emphasis upon a particular aspect of a subject. The subordination of everything else to the examination of a selected group of phenomena is an essential habit of the disciplined mind. Expression of such focus in a map requires the emphasis of those elements of content which will accomplish a given geographic purpose. For example, a special-purpose map of manufactural land use would emphasize the symbol for manufactural and subordinate symbols of other land uses. On the other hand, for general reference with no special focus upon any single use, the symbols would be designed to achieve as even-as-possible differentiation between all uses without emphasis on any particular one.

9. The Principle of Repetition

All Phenomena are repeated with variations. Similarity as well as difference is geographically significant. In evaluating the forces and

phenomena which unify the world or its regions, recognition of repetitive conditions even though not identical is basic geographic procedure.

Everyone is familiar with the repetition of patterns in order to identify the same phenomena in separate portions of a map. Basically similar patterns with only minor variations are often used to express the over-all unit of subdivisions and at the same time provide a suitable basis for distinguishing their separate areas and identities.

Repetition of shapes in graphic representations has sound psychological basis as a devise of organization which makes complexity more intelligible. With appropriate variations, repetition is a powerful weapon unifying the complex diversity of the real world while at the same time affording controlled suggestion of classification and description of its limitless variety.

10. The Principle of Simplicity

The ideal of all expression is to say the most with the greatest economy of means. Simplicity is all the more necessary because of the complexity of the world. The principles of scale and generalization guiding selection and visualization of data at a given scale are best served by keeping both the concept and map simple. The impact of "pictorial metaphors" designed in keeping with the principle of suggestion will be in direct proportion to the simplicity and directness of their appeal. Compromises of contrast and gradation, balance and emphasis are only practicable if the map is kept as simple as possible. The application of the principle of repetition acts to reducd the complexity of form and substance which the viewer must recognize and interpret.

It becomes clear, then, that there is no such thing as a purely compositional solution to the visualization of geographical phenomena, no such thing as cartography for cartography's sake. Each graphical problem appears to be unique and incapable of solution by the fixed application of any check list of rules yet devised regardless of how detailed. Yet it should be stressed that each such problem has something in common with every other problem. The solution of any one of the infinitely varied graphical problems of geographical research may be achieved only through exercise of sound judgment in the application of the principles of generalization, scale, suggestion, contrast, gradation, balance, emphasis, repetition and simplicity toward the construction of a unity of graphical form and geographical content.

GEOGRAPHIC FACTORS AND CARTOGRAPHIC PROBLEMS IN LONG RANGE AND REGIONAL MAPPING PROGRAMS

Robert Lee Wyener

Cartographic Problems: Large areas of the Americas are yet unmapped at medium or large scales, whereas soil surveys, land-use maps and cadastral plans are available in some areas. Only limited sectors of the world are mapped at large and medium scales. For military and economic necessity, it is the purpose of long range programs to fill existing gaps at medium and large scales. The rapidity of map obsolescence and consequent need for current revision are also factors which further delay programs unless temporarily ignored due to exigencies of war and political events, when expediency is most vital. Nevertheless, long range programs are infinite in scope. Nationalism, wars, irredentism; socio-economic expansion in terms of railway-highway construction, petro-mineral exploitation, urbanization, irrigation and conservation speed map obsolescence and negate their accuracy at publication date.

Cartographic problems result in: (1) The inability of cartographers to keep apace with geographic changes. (2) The inevitable rapidity of map obsolescence. (3) International events cause and effect changes on maps resulting in temporary confusion as to status quo of populations, boundaries, sovereignties and whether "de facto" or "dejure".

The Mapping of the United States: Official topographic mapping began in the United States during the American Revolution when the Continental Congress appointed a geographical surveyor to make sketches of the seat of war. In 1838, the Corps of Topographic Engineers was established for military mapping and through creation of the Geological Survey in 1879 spurred mapping of the United States, its current status is interesting to cartographers and geographers alike. Only 25% of the United States is covered by good or acceptable maps at scales of 1 mi. per in. or larger. Also, maps at these scales cover only a small portion of Alaska. In fact, within several months, completion of provisional topographic maps at 1: 250,000 scale covering the entire territory of Alaska will mark an important milestone in American cartographic history. However, the index of U.S. mapping reveals only 33% coverage at 1 mi. per in. and 50% at smaller scales. Most original soil surveys date 75–90 years ago. For water resources development programs, major river basins need new surveys. Startling as it is revealing, in the United States there are large areas for which the basic information regarding differences from place to place needed for regional planning are seriously lacking - as in the

Missouri Valley.

Need for U. S. mapping and reexamining of its entire scientific foundation program in natural resources resulted in the introduction of legislation during the 82nd Congress, "An Accelerated Mapping Program" and "A Comprehensive Basic Data Program in Water Resources." The Bill provides for completion of topographical mapping of the U.S. within 20 years; a 30 year program to complete soil mapping for development of resources in Alaska, Territories, Possessions; a 10 year cadastral surveying program of the Public Domain and Federal Public Lands. Approximately 50 million acres need resurvey. Unfortunately the bill was not passed.

In January 1952, The American Society of Photogrammetry's "Panel on Accelerated Surveying and Mapping" presented the following comments. Dr. J. R. Mahoney, Specialist in Natural Resources, Library of Congress: "Our Mapping programs are ... proceding so slowly that at the current rate of progress, it will require 40 to 100 years for their completion..." Dr. Wrather, Dir. USGS: "The Geological Survey stands ready to accelerate its...program to complete topographic mapping of the U. S. in 20 years... Considering that after 70 years... only 11% of the U. S. is adequately covered... and less than 1% in Alaska... a 30 year program for geologic mapping is not out of reason." Admiral Studds, Dir. U.S. Coast & Geodetic Survey: "...it will take 50 years to complete...(the program of geodetic control...)" M. Clawson, Dir. Bureau of Land Management, "....it will take 200 years to survey remaining public lands." Roy W. Simonson, Ass't Chief, Div. of Soil Survey, USDA: "...2,200,000 sq. mi. in the U. S. including Alaska are without adequate soil maps...". W. H. Bradley, Chief Geologist, USGS: "....to map the remaining 89% of the U. S. .... will require more geologists than the total profession can now round up."

Mapping in the Americas: For the past ten years cartography has been a concern not only to the U. S. but also to states north and south of its borders. There are vast areas where economic, social and political problems must be faced blindly, without the perspective given by a background of geographical information. Surprisingly, Canada's vast expanse is a problem despite the fact that practically all of the country has been photographed aerially. Present plans call mostly for small scale maps, only 25% of Canada has been mapped at 1:250,000 scale. In 1951, S. G. Gamble, Canadian Dept. of Mines & Surveys stated: ...."To compile maps at various scales of an area not far short of 4 million sq. mi. ....will comprise a lot of maps... so we are forced to compromise...with (small scale) mapping. Then the whole area will be covered at 1 in. to 1 mi. – this may not be accomplished during the lifetime of any one here."

To speed mapping in the Americas and many parts of the world steps are being taken by the Inter-American Geodetic Survey and other international organizations to correct past uncoordinated selections of spheroids and datums which have greatly complicated mapping programs. South American nations adopted the International Spheroid so that the triangulation systems of the Americas can be joined. Europe and Africa are doing likewise. Though there exist thousands of cadastral plans and some river surveys, mapping in Latin America lacks complete coverage. There are cases of coastline charts compiled from surveys made 100 or more years ago by British and Spanish mariners. Many rivers are not in their true positions; elevations are in error. P. E. James says: "Now... techniques of cartography make... earlier crude surveys no longer adequate, ... techniques of geographical study require a much greater degree of accuracy and measurement than ...found in older descriptive writings."

The Status of World Mapping: In the global picture, except for a few European nations and limited areas in other regions, there is no adequate map coverage for full economic development of natural resources.

World map production in the past decade has been accelerated by modern photogrammetric techniques and equipment - Multiplex, Stereoplanigraph, Autograph, Stereocartograph, Kelsh plotter, Shoran, Trimetrogon mapping etc. Ironically, magnetometer surveys are speeding topographic mapping but at the same time revealing ore bearing regions and petroleum fields, which will be exploited in time, thus negating the planimetric value of the maps produced. Railroads, refineries, smelters, industrial plants and new communities will come into existence where such discoveries are made. The viability of industries and their contingent socio-economic life cannot be denied. The Williston Oil Basin in the Northwest and the Labrador Iron ore field with its new 360 mile railroad are typical examples of geographic viability.

Economic and Industrial Progress since World War II: Destruction wrought by World War II and reconstruction following have stimulated both hemispheres. In six years Manila, 80% destroyed by war, rebuilt improved bridges, piers and wharves, as have many cities of Europe and Asia.

In the past decade industrial progress, e.g., atomic energy created communities where none existed before. Likewise, villages were swept aside for hydro-electric projects, aluminum, rubber, steel and uranium processing plants. Entire land and soil use patterns were changed by construction of irrigation projects, and communications servicing new industrial complexes fostering rural development with villages springing to life at road junctions and dam sites. In the future we may expect arid areas to change radically with application of new hydrologic techniques.

Recent successful experiments extracting bromide from salt water makes possible pumping of sea water into vast littoral desert regions throughout the world which comprise 1/3 of the available arable land mass. In French Morocco, dams are irrigating millions of acres transforming gray arid lands to wheat tan. In India, three groups of dams modelled on TVA are being built to irrigate 8 million acres. In Iraq, a giant 3,050 sq. km. reservoir on the Wadi Tharthar depression will check flood waters that threaten Baghdad. Extending to Basra, it will provide irrigation and hydroeletric projects. Similar land reclamation projects are in Israel, El Salvador, Brazil, W. Pakistan, Afghanistan, Turkey, France, Portugal, and Spain. Israel has new docks, piers, highways; a second Haif-Tel Aviv railroad under construction. Egypt's Aswan Dam will soon be utilized for powering new steel mills using advantageously hematite ores in the vicinity. One of the world's greatest nitrate users, Egypt will build a superphosphates-nitrates plant, power plants, housing colones, smelters, and rolling mills.

Geographic Factors as Cartographic Symbols: In the United States 17 blast furnaces will be built in 1952-3. To an economic geographer or a cartographer, a steel plant is no small proposition, extending over 300 to 3,500 acres including in its industrial complex -- powerhouses, coke ovens, by-products plant, railroads, e. g., the Fairless Works has 75 mi. of railroad and 20 mi. of roads. Thus, the magnitude of a steel industrial complex becomes important data for geographic and cartographic presentation.

Rising on 5,000 acres of former farmland near the Fairless Works is a new city of homes housing 60,000 people. In less than 2 years Levittown, Pa., assumes stature and size equal to such older cities as Chester and Bethlehem, Pa.

Progress in transportation is reflected in the 15,449 mi. Pan-American Highway linking by land and water Alaska to Patagonia. Brazil has 1,000 mi. of new highways and 2 railroads under construction. One from Santa Cruz, Bolivia to Corumba, Brazil opens a frontier for development in Eastern Bolivia. Chile has new railway branch lines and in 1948 connected Antofagasta with Buenos Aires. Mexico boasts of new oil fields, refineries, pipelines and highways.

Within the past few years, thousands of miles of pipelines and highways were built in the U. S. and geographers and cartographers cannot ignore them. Since 1945, 20,000 mi. of roads were improved into widened or dual highways. In 1944 Congress approved a 40,000 mi. nation-wide network of interstate highways. Since 1940, 500 mi. of new R.R. feeder lines were built. Even the Arctic has a new face with copper and iron mines

and villages. All are important data to the cartographer and geographer.

Physiographic Factors: Recent volcanic eruptions in Japan displaced patch-quilt diluvial terraces moving millions of tons of earth, blocking a river and changing its course. A landslide destroyed an alpine village; a new road replaced the one buried. Ecuador's Volcano De Tungurahua erupted completely demolishing two towns during quakes of 1949. The towns were rebuilt at new locations.

The geographers' problems due to physiographic changes are exemplified by the Columbia-Lippincott Gazetteer of the World, which required six years to compile. When the gazetteer was typeset, an expedition discovered the highest peak of the Drakensberg Range in So. Africa. During proof stage, another discovered the Orinoco headwaters, Mt. Etna changed its height erupting, an oceanographer located the Pacific's greatest depth--both latter data received too late to incorporate in the gazetteer.

Toponymy - The Cartographer's Enigma: Political events and nationalistic movements changed boundaries, status and toponymy of many countries since World War II. New borders and national titles were established for Israel, Trans-Jordan, India, Pakistan, Baltic Republics, USSR, Finland, Germany, Poland, Czechoslovakia, Japan, and Viet-Nam.

Toponymy, essentially a geographic problem, sends cartographers searching for current data to ascertain names. Nationalism and colonialism have wrought havoc with toponyms. Japanese, French, Dutch, Portugues and British possessions are notorious for dual appelations in the Far and Middle East. For a half-century map makers have been superimposing linguistic equivalents above the indigenous place names of Korea, Manchuria, Sakhalin and Formosa. In regained territories the Russians and Chinese are revising or restoring old place names, e. g., in Sakhalin. The Netherlands East Indies, now the Indonesian Republic, prefers Djakarta to Batavia; Irian for Western New Guinea. Israel is systematically revising Arabic toponyms. Dual names are global, e. g., Argentina's disputed Islas Malvinas for Britain's Falkland Is.; Yugoslavia's Rjeka for Italian Fiume.

Toponymic changes are continuous in the USSR where political figures, Lenin, Kuibyshev, Kalinin, Stalin, Molotov, to list a few, have places named for them. Asiatic and Middle Eastern Russia are replete with new geographic names replacing many of Turkish, Mongol, and Armenian origin. Toponyms, an instrument of nationalism, change constantly.

Central Europe had its share of name changes when Poland was physically transplanted 150 mi. westward after World War II, gaining a third in former German lands, then German names were changed to Polish.

East Prussia is now non-existent, her Danzig is Gdansk, (Konigsberg) Kaliningrad, (Tilsit) Sovietsk, (Insterburg) is Chernyakhovsk in W. Soviet Russia.

International boundaries are further complicated by their indefinite status, de facto or de jure? Neither Poland's new de facto borders nor many national boundary changes brought about by pacts or aggression have de jure U. S. recognition, requiring dual symbolization and status labeling. Irredentist agitation can change many disputed areas, e. g., Kashmir.

Demography - A Geographic - Cartographic Factor: The mass transmigration of populations due to creation of Israel and Pakistan have produced unique demographic situations. Some cities shrank for loss of people, while others mushroomed with their influx. Comparable conditions exist in Jerusalem, Tel Aviv, Damascus, Basra, Baghdad, Lahore, Dacca and Amritsar. Delhi's 1947 population and Calcutta's doubled by 1951; Karachi's trebled. More than a million Arab-Hebrew and 12 million Moslem-Hindu refugees are still transmigrating. The populations of many cities will remain doubtful for years.

Political - Geographic Factors: Political unrest closed refineries at Abadan and Haifa but oil discoveries and stepped-up production created pipelines and piers in Kuwait, Bahrein Is., Saudi-Arabia and a 566 mi. pipeline from Kirkuk to the Syrian coast paralleling the Kirkuk-Tripoli line. Anglo-Iranian is building a refinery and oil port at Aden. These changes are strategic affecting surveys, maps, geologists and geographers.

Geographic Factors of the Air Age: Consider the Air Age - the proximity of distant places due to aeronautical speed and progress. Today, just as cartographers measure latitude and longitude in minutes, the pilot measures distances between New York and Paris in multiples of minutes, not miles. Though, foreign neighbors seem closer, more easily reached, need for air navigation maps and information has multiplied. In Arctic regions, Tundra and Permafrost terrain are being studied, mapped; air research experiments are charting weather, climate and winds.

In the field of air navigation the Aeronautical Chart & Information Service solves long range chart problems with regional geographic research of the world. Collections are made of maps, surveys, astronomic observations, photography; transport, and geographic studies. The acquistion of information for all areas of the world is a continuous process.

A current, accurate map should portray the most recent physical, cultural and political changes. Cartographers solve this problem revising

small scale maps by superficial generalizations. Large scale maps require a high order of accuracy based on photogrammetric analysis supplemented by intelligence reports, geographic studies, and geodetic adjustments. However, many organizations due to work load, scope or expediency, record metamorphesis by revising small scale maps at 10, 20 or 30 year intervals depending on the region. Thus, one realizes why large scale maps suffer for want of revision except in exigencies when cost and effort are secondary. During World War II the Army Map Service published over 30,000 different maps. Six weeks prior to "C" day grids for 10,000 different maps were drawn. When Korea was invaded, the Corps of Engineers had 368 different sheets representing complete Korean coverage at all scales. In weeks 20 million were published, including 200 large scale sheets revised in that short period from aerial photography.

The status of world mapping was evident during World War II when many nations found their maps inadequate. Since, there has been a plethora of revised medium and large scale series. Despite impetus of military necessity due credit should be given to advances in techniques of cartography and photogrammetry.

Objectively, cartographers and geographers realize mapping has made great strides in a decade but recognize obsolescence and continual need for revision as serious problems. There is no definite goal other than the hope that eventually mapping of the geoid, national or regional charting will be coeval with progress of man and society, for the sequences of cause and effect due to social, economic and political processes change world geography, keeping cartographers busy and geographers in a turmoil.

MOUNTAINS ARE NOT ENOUGH

William H. Parker
McMaster University

In "Are Mountains Enough?" by Edward L. Ullman, (The Professional Geographer, July, 1953), the right of relief-portrayal to dominate atlases is questioned and it is urged that more prominence be given to climatic data. An even more radical approach might be justified.

The pride of place given to relief maps dates from the outworn conception of physical geography as the listing and mapping of surface features such as mountains and rivers, capes and bays. While in other respects the subject has been transformed, standard atlases have made little progress beyond the addition of a few very small-scale maps of selected subjects; relief still provides the 'body' of the atlas.

Much of the work of the new geographers has been to show how relief and drainage, along with other surface features, are not basic in themselves, but the result of the interplay of two fundamentals: geomorphologic and lithologic structure and climate. These two basic distributions govern the relief and drainage, the natural vegetation, and through them, the soils; they provide opportunities and limitations which affect and sometimes control the location of crops, mines and industries, and are mirrored in the distribution of population.

There are two basic distributions and several others which are, in differing degrees, consequent upon and secondary to them; also these are themselves inter-related. The ordinary atlas is given up predominantly to one of these consequentials while the fundamentals may be relegated along with other secondary distributions to a set of small-scale diagrams or perhaps omitted altogether.

Existing maps of structure have too often to be on so small a scale as to make useful classification and differentiation impossible. Climatic maps have suffered from generalization and from the segregation of the different aspects of climate which together make up weather. Here again, the small scale set aside for such maps makes the portrayal of weather, or climatic factors in combination, impracticable. If the larger scales made available to relief were used, it should be possible to show on one map: (a) annual rainfall in colors with (b) seasonable distribution of precipitation by a selection of block diagrams, (c) temperature by actual isotherms colored for month (say red for July, green for January), (d) wind direction and average force by arrows.

A good atlas, arranged in accord with present-day geographic method, would show first the two basic foundations of the subject, and as many of the other aspects of it as space would allow. It would be most important for all these maps to be drawn to the same scale so that the existence and extent of relationships could be illustrated and assessed with more effect than is possible at present.

Such an atlas would lead the student to perceive many relationships, as between structure and relief, climate and soils, structure and mining, climate and agriculture, soils and agriculture, etc. He would likewise note that some relationships were intimate while between other aspects of the subject, the interconnection was weak. The mere perusal of such an atlas would promote geographic thought, but study of a relief-map-dominated atlas is productive of limited information and suggestive of no ideas whatever.

DEPARTMENT OF AGRICULTURE GRADUATE SCHOOL

A course of study designed to give the analysts, researchers, teachers, and librarians who work with maps, understanding of both domestic and foreign maps and charts, the agencies which produce them, their catalogs and indices, present methods in reading and problems in interpreting foreign maps will be given by Katherine I. Bahn, in the Department of Agriculture Graduate School, on Monday nights from 6.10 to 8 p.m., commencing September 21 and continuing through January, 1954. U.S., foreign and international mapping activities will be studied on a workshop basis to permit presentation and solution of individual problems. It is course 5-114 and is a two credit course.

ANNOUNCEMENTS

XVIth ITALIAN GEOGRAPHICAL CONGRESS

The XVIth Italian Geographical Congress is scheduled for April, 1954, under the auspices of the Universities of Padova and Venice. The Secretary-General of the Congress will be Professor Giuseppe Morandini, Director of the Institute of Geography, University of Padova. Work of the Congress will be organized into five sections: 1) Physical Geography, 2) Anthropo-geography, 3) Political and Economic geography, 4) Historical geography and History of geography, 5) Didactic geography and geographical culture. Within the framework of these divisions, prospective participants are urged to concentrate their studies on the following subjects: a) Relationship between snow and ice, b) Relationships between geographical regions and territorial planning, c) Fishing centers, d) Teaching geography at the secondary school level.

MAPPING IN NEW ZEALAND

The preparation of an annotated bibliography of New Zealand maps was begun as a pilot project by the Canterbury Branch of the New Zealand Geographical Society. At the last meeting of that Society's Council the Canterbury Branch was asked to circulate its report of progress on the bibliography to other Branches, which in turn were asked to commence work in their own centers and forward the results of their bibliographic research to the Canterbury Branch for coordination and presentation at a future council meeting.

The New Zealand Government undertook as a Centennial Project (1840-1940) to produce a National Atlas covering both geographical and historical aspects of the country. Under the general direction of the Dept. of Internal Affairs, an eminent historian and competent staff were employed several years. There is now some expectation of completing the Atlas or at least of publishing parts of it on which most progress was made before the project waned under the realities of economic inflation and a change of government.

GEOGRAPHY OF CHINA

The Secretary of the Chinese National Committee, Dr. Frederick Hung, will be at 139 Girard Ave., Hartford, Conn., until August 1954. After receiving a doctorate at the Universite de Lyon, he has served on the staff or as a lecturer at Tsing Hua University in Peiping, Clark University,

and the Kennedy School of Missions in Hartford. His English is excellen and he would welcome opportunities to give, in return for expenses involved, lectures on the Geography of China.

MALAYAN JOURNAL OF TROPICAL GEOGRAPHY

The Department of Geography of the University of Malaya is launching a new periodical to be known as "The Malayan Journal of Tropical Geography". The first number is appearing in October 1953 and thereafter twice a year - in March and October. Its first editor is Paul Wheatley, M.A. late of University College, London and now with the University of Malaya.

In publishing this newcomer to professional periodicals, the sponsors of the M.J.T.G. aim to provide a vehicle for those detailed tropical studies unlikely to find a place in journals which are related more closely to the needs of other regions. Many articles in the M.J.T.G. will be on Southeast Asian tropics but other tropical regions are also to be covered. Fundamental materials will form the bulk of what appears in the Journal, which therefore should merit the attention of all those connected with developments in the tropical environment.

Subscriptions at $1.50 per issue or $3.00 per year may be sent to the Department of Geography, University of Malaya, Singapore 10.

FUNCTIONS OF CENTRAL BUREAU OF INTERNATIONAL MAP OF WORLD TRANSFERRED TO UNITED NATIONS

The signing of the Protocol transferring to the United Nations the functions of the Central Bureau of the International Map of the World on the Millionth Scale, has been completed at UN Headquarters.

The transfer of functions was recommended by the Economic and Social Council in a resolution adopted on 20 September 1951. In accordance with the terms of the agreement, officially called the "Protocol concerning the transfer to the United Nations of the functions hitherto performed by the Central Bureau of the International Map of the World," the UN Cartographic Office will assume the Bureau's work on 30 September 1953. This consists of coordinating the publication of the International Map by interested countries, using uniform specifications, and acting as liaison between governments in the exchange of technical information.

THE XXIX DEUTSCHER GEOGRAPHENTAG MEETINGS

George Hoffman

More than three hundred geographers attended the 29th German Geographical meeting. Over thirty papers were presented in two and a half days. An interesting excursion of the city of Essen was arranged for all participants and two days were devoted to a number of excursions. The meeting, which was opened by the President of the German Geographers, Professor H. Lehmann of Frankfurt, had two significant features. One was the large number of reports on research in overseas regions, and the other was the large number of papers in geomorphological studies. The reports of geographical research in overseas regions presented a varied picture of German traveling and interests. In this section several German geographers attending the International Geographical Union meeting in the United States, and staying long enough to pursue some independent research, reported on their work. Professor Pfeiffer, Heidelberg, reported on the cultural geographic position of the southeastern part of the United States; Professor Mortensen, Göttingen, reported on the results of a geomorphological journey in Texas, New Mexico, and the Grand Canyon; and Professors Schott, Kiel; Lehmann, Frankfurt; and Wilhemy, Kiel, read papers concerning their work in the Canadian Prairie provinces, The Tropical Kegelkarst in the West Indies, and the Pacific coastal plains of Colombia. All these papers were accompanied by excellent colored slides.

Most of the papers were followed by brief discussions, which in contrast to American practice, were not so much critical as a comparison of the experience of colleagues in their own research. Special mention should also be made of the excellent map exhibits by private map companies and by the former Amt für Landeskunde, now an official government agency headed by Professor Meynen. Also the planning agencies of the Ruhr assembled a series of interesting maps, pictures and charts. The map exhibits showed the high standard German cartography has again reached. The papers presented clearly expressed the great diversity of German geographic work with work in geomorphology still predominating. Mention should also be made of two visitors from the Eastern Zone of Germany, Professors Haack, editor of Petermann's Mitteilungen and Neff of the University of Leipzig.

NEW PUBLICATIONS

The Geographical Branch, Department of Mines and Technical Surveys, Ottawa, Canada, has just published:
Indo-China, 92 pp. with maps, 50 cents per copy.
Southampton Island, 84 pp. with maps, 50 cents per copy.

To the Nagel Travel Guide Series there has recently been added:
Iceland, 72 pp. and maps. $3.00
Austria, 350 pp. and maps $4.50
These guides present a rather full picture of the countries, including concise treatments of history, geography, arts, industry, commerce and sports. Detailed information is given about travel facilities and routes. Orders may be sent to Frederick A. Praeger, 105 W. 49th Street, New York 18.

Le Sahara Francais by Robert Capot-Rey is volume 2 of Géographie de L'Union Francaise. It is a 465 page volume in French sold by the Presses Universitaires de France, 108 Boulevard Saint-Germain, Paris, 1953. The physical, human and political geography of the region are treated rather fully and the book contains an elaborate bibliography of related publications.

Robert E. Dickenson's Germany, published by E. P. Dutton Co., 300 Fourth Avenue, New York 10, New York ($10.00) is in six parts dealing with the lands, peoples, habitat, economies, politico-cultural groups, and regional landscapes. This is an up-to-date source book on Germany, containing 14 terrain maps, 107 figure maps, and 20 pages of bibliographical references on Germany.

Keys to Map Evaluation is a special publication of the Geography and Map Division, Special Libraries Association. The first section by Bill M. Woods of the University of Illinois treats "School Maps, Their Evaluation and Selection from Catalogs". The second section by Clara E. LeGear of the Library of Congress Map Division deals with the "Evaluation of Old Maps". Until the limited supply is exhausted, copies may be obtained without charge from Arthur B. Carlson, Curator of the Map and Print Department New York Historical Society, 170 Central Park West, New York City.

An index map of the Status of Aerial Photography in the United States has been published in March, 1953 as the sixth edition. On it are shown all areas known to have benn photographed by or for Federal, State, and commercial agencies. Copies may be obtained without charge from

Mr. J. D. Kilmartin, Chief of the Map Information Office, U. S. Geological Survey, Washington 25, D.C.

Land Utilization: A Graphic Summary, Vol. V, Part 4, of the U. S. Census of Agriculture, represents the combined efforts of the Bureau of Census and of Agricultural Economics to present graphically significant facts about the uses of agricultural lands both inside and outside farm boundaries. Based largely on 1950 data, it also summarizes changes in agricultural land use during the half century. Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. 45 cents.

Geography of the Northern Ozark Border Region in Missouri by James E. Collier, University of Missouri. University of Missouri Studies Vol. XXVI, No. 1, $2.50.

The study analyzes the geographic character of the region to determine elements of unity and disunity, and its relations to bordering regions. Surface relief, drainage, climate, vegetation, and soils are examined as basic elements in the physical environment, and economic activities of the people are analyzed in their physical setting and regional location. A central theme is the extent and character of the available resources and their utilization by the inhabitants of the region. The leading occupations of the area, agriculture, forestry, mining, and manufacturing, utilize the most important resources of the area and are distributed over the extent of the region according to the patterns of resource distribution. Human activities in the area are closely related to the physical environment and to these available resources.

TREASURER'S HALF-YEARLY REPORT

Copies of the report covering the period December 16, 1952-June 15, 1953, prepared by the Treasurer, are available upon request from the Central Office. The report consists of a Summary of Receipts and Expenditures for the first half-year, a Budget Recapitulation as of June 15, 1953, and a Balance Sheet.

REVIEWS

Kartographische Nachrichten 1953, No. 1.

This number is particularly rich in interesting articles. W. Borman's "Where cartography stands today", gives the ideas of eminent cartographers on the subject. They contain the points of view of science and art, technique versus geography, mathematical against qualitative treatment, picture versus abstraction. Obviously there is no solution. Cartography is all of these. The present tendency for the prevalence of formal standardized technique over expressive individual handling is regrettable but can hardly be avoided because of the breakdown of jobs in large establishments, and a more mechanical appearance of our maps will continue. It is the individual cartographer's task to restore the expressive, more artistic, handling.

An article by H. Schiede advocates the use of native spelling of the foreign names, as a name is a part of the language of that country. German maps may sell better in foreign countries if native spelling is used. This is a remarkable digression from the maps of the Hitler period.

M. Zippel writes on newspaper maps. We learn that a newspaper in Basel as early as 1590 had maps of battles. The history of such maps is traced until the present time, and examples are shown, among others Lenz' map in the Christian Science Monitor, and English, French and German copies are given. The requirements of newspaper maps - simplicity, expressiveness, printableness, and fast production - are analyzed.

With certain envy do we look at reports of local meetings in Brunswick, Hanover, Kiel, Lippe, Munich, etc. The national meeting will be in Stuttgart, September 16 - 19, with an excursion into the Swabian Alps.

Robinson's , "Look of Maps" is favorably reviewed.

Erwin Raisz

Bagrow, Leo: Die Geschichte der Kartographie. Berlin, Safari, 1951. with 228 figures in the text, and 120 photographs.

Leo Bagrow, editor of the only journal devoted exclusively to historical cartography, and for many years one of the world's leading scholars on that subject, is the author of this, the first comprehensive history of cartography in German, and one of the very few of this nature. Writing

from an unusually rich background of learning and experience, Bagrow paints in broad strokes the fascinating history of man's attempts to draw an image of the world around him. The continuity of this story takes the reader from the primitive peoples of Africa through the classical period to the T-O maps and portolans of the Middle Ages; the first flowering of mapmaking during the Renaissance; the influence of the discoveries and the cartographic renewal of the 16th century, the time when all European nations began the survey and mapping of their own territories; the century of the great atlases (cca 1590-1700); and on to the mid-18th century, the time when scientific cartography based on modern methods of geodesy replaced the older, more artistic but less accurate approach. The maps and mapmakers of Russia and Turkey are discussed in some detail (this being perhaps the first comprehensive summary of early cartography in the Russian and Turkish empires) as well as the role and importance of the map as a work of art.

A list of several hundred cartographers is appended to Bagrow's "History," that, together with an excellent short bibliography and numerous important references in the text, makes this book an indispensable manual for research in the field of historical cartography. Illustrations are abundant and of more than usual interest, since numerous maps and globes are reproduced here that would ordinarily not be accessible to the average student.

The straightforward and personal style of the author, the wealth of factual information, the refreshingly new and often unorthodox approach to some of the more complex problems of the history of maps, and above all the author's ability to weave a continuous narrative makes Bagrow's "History of Cartography" one of the most significant contributions to the field in many years.

G. Kish

Imago Mundi - A Review of Early Cartography - edited by Leo Bagrow - vol. IX, Stockholm, 1952.

Volume IX of Imago Mundi appeared during the spring of 1953, continuing this outstanding and unique series of contributions to the history of cartography. The most detailed articles contained in this, the latest volume to be published, are H. Winter's monograph on the Majorcan cartographer Petrus Roselli (active 1447–1468) and J. Keuning's extensive and definitive study of the development of cartography in the Netherlands during the 16th century. Leo Bagrow continues his series of significant studies of Russian cartography, dealing in this issue with the influence of early Russian maps on contemporary European works dealing with northeastern Asia. F. Banfi contributes a long and very

interesting monograph of the Cosmographic Loggia of the Vatican, that unusual series of "fresco-maps" depicting the whole world of the 16th century. Other articles include a study of the three "maplets" attributed to Bartholomew Columbus and their importance as a world-image of Columbus' time (by G. E. Nunn); an article clarifying the problem of early Jesuit maps of Japan (by J. F. Schutte); and a series of short articles and notices on matters of interest to students of early cartography, as well as a chronicle of events in the field and a current bibliography of contributions to the history of cartography. Surpassing several earlier issues, this volume is among the most lavishly illustrated, with excellent and detailed reproductions of the works treated in the text.

G. Kish

Decorative Printed Maps of the Fifteenth to Eighteenth Centuries, a revised edition of 'Old Decorative Maps and Charts' by A. L. Humphreys. With eighty-four reproductions and a new text by R. A. Skelton. London: Staples Press Limited, 1952. 12 1/2 x 10 inches; viii 80 pages; 84 plates. 73s 6d. New York: Staples Press Incorporated. $14.50

Decorative Printed Maps has been designed to serve as an introduction to the engraving, printing and publishing of maps of the fifteenth to eighteenth centuries, and by the inclusion of eighty-four plates as a specimen book of representative maps styles. The technical problems involved in producing a copper plate, its durability and ease of alteration, the pulling of impressions from different states of the plate through many years, and the characteristics in design, decoration and lettering of national schools of cartography are explained clearly, concisely, and with literary skill, for the enlightenment of the amateur and the delight of the connoisseur. The relations of map makers one to another, and their dependence on "mother maps" are discussed. There are also excellent bibliographies. Altogether this is a distinguished book.

The majority of maps selected for reproduction have been reduced approximately to one-half or one-third scale, too small to be of use for detailed information, but adequate for general characteristics. A number of excellent one to one facsimilies are included.

For the collectore who may be dismayed at the price asked for many old maps and atlases, Skelton offers encouragement: "...many interesting and significant maps may still be had at moderate prices; and...luck supported by expertise may still bring together a considerable and even valuable collection, particularly in fields and periods which are still unfamiliar or held in low esteem by contemporary fashion" (p.28).

Charles F. Strong

Rapport de la Commission pour la Bibliographie des Cartes Anciennes.

Fascicule I contains Prof. Almagia's Report to the XVIIth International Geographical Congress, summaries of the maps by Macrobius and de Haldingham, and a list of Catalan charts of the XIVth Century.

Fascicule II is a catalog of the engraved maps of the XVth Century. Both Fascicules were printed in France (Firmin - Didot & Cie, Mesnil, 1952) with the financial aid of UNESCO and a limited number of copies were made available to the IGU Secretary (Dr. G. H. T. Kimble) for distribution.

Practical and Experimental Geography, W. G. V. Balchin and A. W. Richards, London: Methuen & Co., Ltd., New York: John Wiley and Sons, Inc. 1952. $2.75.

This book was designed for use in the secondary schools and training colleges of Britain, but most of the exercises are of general interest. For example, maps of the United States are used to illustrate the subsection on Statistical Distribution Devices. Many of the ideas presented should find ready acceptance in the United States.

Some idea of the scope of this work can be gained from the titles of the main sections: Earth Movements, Land Forms, Atmosphere and Oceans, Survey and Map Projections, and Distribution Maps and Cartograms. Complete instructions are given for the construction of a large number of models including tellurions, time wheels, sun dials and hygrometers. All of these can be made from easily obtainable materials such as cardboard, wire, laths etc. Seventy-three line drawings are used to illustrate the text.

Norman J. W. Thrower

Egger's Homogeneous Contour-Line System

Hermann Egger of Switzerland (P.O. Box 863 Zurich 22) designed a system in which the density of contour lines is more or less the same but the contour interval changes from place to place. The contours are of different thicknesses and have notches designating whether the interval is 1, 10, 100, multiples of hundred or even a thousand metres. The engineer needs much closer intervals in the plains than in mountains. The visualization of the terrain is extremely difficult, but in construction work such map may be helpful.

Mr. Egger also designed a color-shaded relief system. There are six layer tints but each layer is divided into three categories depending which way does the slope face. West and Southwest facing slopes have

brighter colors than East and Southeast facing slopes. North facing slopes have again a distinctive color. This gives 24 standard colors. This is an interesting experiment and Mr. Egger is glad to supply a pamphlet describing these methods.

Erwin Raisz

Our World From the Air: An International Survey of Man and His Environment. by E. A. Gutkind. With a Foreword by G. P. Gooch, and an Introduction by Lewis Mumford. Published under the auspices of the British Institute of Sociology. Garden City, New York, Doubleday & Company, Inc. 11 1/2 x 10 3/4 inches. $7.50. (English edition has introduction by E. G. R. Taylor. London: Chatto & Windus, 63s.0d.)

Our World From the Air contains four hundred photographs, almost all of them aerial views, with accompanying text presenting a sociological analysis of human occupance of the earth. The emphasis is on village, town, and urban settlements and functions; agricultural occupance is inadequately treated. The material is organized in the framework of sociological concepts, proceeding from simple to complex groupings of people, and from a desire for security of primitive villages to the social disorganization and purposeful planning to rationalize physical layout characteristic of great cities of the present day. The parts of the book are Fear and Security; Confidence and Adjustment; Aggressiveness and Disintegration; and Responsibility and Unification. Each part has a number of sections and sub-sections. For example, seven types of villages are discussed and illustrated with thirty photographs. Each part has introductory photographs giving scale, symbol and agent as representative of the technological aspect of communication and power, ranging from walking to flying, from coolie operated water-wheel to the kilowatt generators of the T.V.A.

The photographs provide a truly international coverage of human activity on the earth, are excellently reproduced, and, with few exceptions, adequate in size. The locational maps contain a number of errors in the plotting of small towns and villages. Useful indices list the photographic coverage by area and by subject.

For geographers this presentation of man's imprint on the world from the viewpoint of another discipline is challenging, and will stimulate reflections on geographical methodology. This is a magnificent book, and one of value to all who appreciate good photography and are interested in man's activity in subduing the earth to his purposes.

Charles F. Strong

Kleiner Schulatlas. Velhagen and Klasin, Bielefeld, Germany, 1951

This modern German School atlas is more attractive and more informative than most of the American products. One reason is that our grade texts for geography already contain the necessary maps, while most German pupils use separate atlases with larger scales. The amount of information packed into the 42 pages of this 9x12 Kleine Schulatlas compares with our high-school atlases.

The general maps are in a very plastic color relief, reminding us of the Wenschow method which derives from a photograph of a relief model. Here, however, the plasticity is obtained simply by highlighting the west-facing edges of the colored layer tints. This method seems to have become popular in Europe.

What impressed me most was not so much the Atlas but a supplement to it: a Heimatkarte (homeland map) of Kreis Wiedenbruch. Apparently similar supplements are prepared for many "Kreis"-es. Not only has it an excellent 1:100,000 general map for the country, but also separate maps showing historical development, agriculture, population density, industries and outstanding buildings, designating even their style. Detailed city maps show settlement types. How many countries in the United States have such special school atlases?

The Atlas and its supplement reflect the artistic ability of Dr. Fritz Holzel, one of the most outstanding German Kartographers.

Erwin Raisz

Review of the atlas - Der Donau-Karpatenraum, bearbeitet im Institut für Agrarwesen and Agrarpolitik an der Landwirtschaftlichen Hoehschule Hohenheim und im Deutschen Ausland-Institut Stuttgart, under der Leitung Professor Dr. P. Hesse, Stuttgart-Hohenheim, 1943, 48 maps, text explanations, photographic appendix.

Users of this atlas must take full account of its origin and purpose. It was sponsored jointly by the Central German Research Agency(Reichforschungsrat, Fachsparte "Raumforschung") and the Nazi organization for protection of the German race (Reichskommissars für die Festigung deutschen Volkstums.) Prepared in 1943, its announced purpose was to provide factual material to aid in the integration of Southeastern Europe within the then Greater German Reich. German groups in this area receive considerable attention in the maps and most of the map explanations are written with a nationalistic emphasis on the greater accomplishments of the Volksdeutch in comparison to the "alien" (Fremde) local

inhabitants.

The area covered by the Atlas is essentially Hungary and Rumania. National boundaries are as of 1942, although the Russian absorption of Bessarabia is not recognized. Data are usually shown for the Serbian Banat, for Jugoslavia north of the Sava, and, on a few maps, for Slovakia in the northwest. A uniform, monochrome base map at 1:2,000,000 is used which includes internal administrative divisions and forested areas, as well as major rivers and towns.

The atlas is divided into three parts, captioned with the geopolitical trilogy of Raum, Volk, and Landwirtschaft. The first section contains three mediocre maps: a road map, a hypsometric map with areas subject to flood incompletely explained in the legend, and a highly generalized soils (Bodenarten) map differentiating loamy, loessal, rocky, etc. soils.

The section on population contains fifteen maps. There are separate maps with data by minor civil divisions for total population density, density of agricultural population in relation to agriculturally useful land, size of farm holdings, ethnic composition (on a nationality-linguistic basis with bar graphs for each administrative division,) and the distribution of industries processing agricultural products.

A number of maps deal with the German group. A dot map (the only one in the Atlas) of German population is followed by several showing the distribution and membership of German agricultural organizations (Genossenschaften), the distribution of German-owned agricultural processing plants. These maps of the German Volkstum are largely of historic interest, but are pertinent to the broader question of the distribution and function of "cultural islands".

Over half of the maps are devoted to agriculture, the most valuable portion of the Atlas. There is a land use map with eleven categories based on varying percentage combinations of four leading crop-groups. Localization of special crops not covered in this classification is also shown. The remaining maps are mostly on a ratio basis -- density, yield, percentage relationships -- but absolute figures for administrative areas appear on most. The general aspects of land use are further elaborated by a map of agriculturally useful land as percent of total land area, and a series similarly relating major categories of land use to the area of agriculturaly useful land. The distribution of seven leading crops -- related percentagewise to cultivated land -- is shown on separate maps. For five of these the yield per hectare is shown as a percentage of the national average yield, a device which emphasizes areal departures from the mean. Animals are shown by a map of pre-

dominant combinations and separate maps for density in relation to agriculturally useful land. Finally, two maps portray the estimated surplus or deficit of foodstuffs and meat as a percent of total production.

Technically the Atlas clearly reveals its wartime origin and is far below the standard usually achieved by German atlases. Paper is unglazed, colors are not evenly printed, and color values on areal symbols are sometimes too close to allow easy interpretation of the map data. Hurried or careless compilation is suggested by several minor errors in legends, captions, and symbol arrangement.

Questions of sources and possible bias raise several imponderables. For no map is the date of the data specifically given. Sources cited include official publications of the various countries down to 1940, together with a number of reports by German individuals and agencies dated as late as 1942. Some of these carried security classifications as did the Atlas itself. The Atlas therefore represents a German effort to set forth the agricultural economy of the Danube area as of the early 1940's. The specific purpose for which it was prepared could have resulted in an upward bias in the data shown. This could be evaluated only by a careful check of the sources, or by comparison with equally detailed distribitional data for the area. It is the paucity of such data in the postwar period which gives some significance to this work which is technically weak and based on data at least fifteen years old. It should, however, be used with great caution.

Thomas R. Smith

Nordish Skolatlas. Svenska Bokförlaget, Stockholm, produced at the Generalstabels Litografiska Anstalt by several authors, and directed by Carl M:son Mannerfelt.

This atlas is for high schools and our first impression is that it could serve just as well for our graduates of geography. The amount of information packed into 64 pages is remarkable. Characteristically the first page shows diagrams of air mass analysis, and the last page is a political map of the World. Besides the conventional maps of countries and continents, there are land-type maps with somewhat harsh colors differentiating tundra, boreal forest, deciduous forest, bush, rain forest, savanna, steppe, semi-desert and desert. Cultivated land is brilliantly yellow, mountains are somewhat roughly shaded. The economic maps are excellent. The vegetation maps have superimposed rainfall and temperauure curves. The Atlas compares favorably with the latest German, Swiss, and Dutch products.

Erwin Raisz

Atlas of Sweden

This Atlas will consist of 150 pages of maps and about 300 pages of text, on 13.5 x 17" paper. The Atlas will be published in sections and will take about four or five years. The first issue will appear in 1953. The following sections are contemplated: Morphology, geology and geophysics; Meteorology and hydrography; Fauna and flora; Population; Agriculture; Forestry; Industry; Commerce; Communications; Economics; Sociology; Culture; Politics; History. Note the prevalence of human versus environmental sections. Funds have been granted by the government and the Wallenburg Foundation, and the work is published by the Swedish Society for Anthropology and Geography. The editorial committee consists of C.J.Anrich, G.Enequist, I. Högbom and M.Lundquist. Symbols are explained in English and an English summary follows the text. The subscription cost is Sw. Cr. 20 ($3.87) per fascicole (6 pages of maps, 12 pages of text), and can be ordered from the Generalstabens Litographiska Anstalt, Stockholm 16.

Erwin Raisz

Concise Oxford Atlas. General Editors D.P.Bickmore and K.F.Cook. Oxford University Press, 1952. 10 x 7 1/2 inches. 18s.6d. ($3.75).

The majority of maps in the Concise Oxford Atlas are politically colored printings, of locational maps from the Oxford Atlas. Distinctive features of the Concise Atlas include six "specialty" maps of Great Britain, an historical gazetteer of Great Britain and Northern Ireland, monthly climatic data for selected stations, improvement in the color printing of physical maps, and the use of type on new maps. The special maps are two for historical sites before and after 1066, and one each for sunshine and rainfall, physical features, population, and scenery and national parks. The population map not only has a dot distribution pattern of relative density, but also differentiates the size of major cities, urban, conurbation, rural and sparsely settled areas. The co-variation of relief, precipitation, sunshine, scenery and population are admirably brought out by the special maps. Maps showing industrial distribution and agricultural regions might well be included in future editions. For its convenient format and its special features the Concise Oxford Atlas is a useful addition to any library.

Charles F. Strong

SELECTED RECENT MAPS AND ATLASES

Marie C. Goodman
The Library of Congress

ATLASES

Arkansas. Resources and Development Commission. Industrial Prospectus of Arkansas. (Little Rock, 1952) 46 p. maps, loose leaf, 34 x 41 cm.

This atlas indicates the Commission's bid for industry to develop the state. It is similar to A Kansas Atlas (1952) which won an AAG award for the cartography by George F. Jenks.

Boesch, Hans H.

Wirtschafts - geographischer Atlas der Welt, Bearbeitet am Geographischen Institut der Universität Zürich. Bern, Kummerly and Frey (1951) 62 p. text, 25 maps (24 loose in portifolio).

A scholarly and concise economic atlas of the world. The maps cover a variety of subjects such as climate and vegetation, oil, coal, iron and steel, textiles, sugar, coffee, cacao, tea, and fisheries. Text describes and interprets each map. Forty-one statistical tables and a bibliography complete the work.

Davies, C. Collin

An Historical Atlas of the Indian Peninsula. Reprinted with corrections. Madras, Geoffrey Cumberlege, Oxford University Press (Indian Branch) 1953. 94 p. maps. Price Rs. 3.8.

Traces the history of India from 500 B.C. to 1947. Bibliographies are included in the text. The author is a Fellow of the Royal Historical Society and Reader in Indian History in the University of Oxford.

Derrick (Paul E.) Advertising Agency Ltd., London, 258 Westminster Bridge Road, S.E.1.

Marketing Maps of Great Britain and Eire. London, (1952) 25 l. 25 col. maps. 35 x 48 cm. Price £3.30.

Includes maps of various regions and the major metropolitan areas. Distinguishes (1) "Cities and towns with populations of 20,000 and above shewn in proportional sizes"; (2) "Towns between 10,000 and 20,000 populations ...."; and (3) "Important market towns and other centres with resident populations below 10,000 shewn." Each map is preceded by a table of population figures.

Gardette, Pierre

Atlas Linguistique et Ethnographique du Lyonnais. Publié avec le concours du Centre Nationale de la Recherche Scientifique par l'Institut de Linguistique Romane des Facultés Catholiques de Lyon. v. 2.1952. 48 cm.

A regional atlas devoted to the language, ethnology and agriculture of Lyon. Volume II contains 400 maps, about 100 more than Volume I which appeared in 1950.

Haefke, Fritz

Atlas zur Erd-und Länderkunde Grosse Ausg. Berlin, Volk und Wissen, Volkseigener Verlag, Gotha, Justus Perthes, 1953. vii, 99p. (chiefly col. maps, part fold). 31 cm. "Namenverzeichnis" (55 p.) inserted.

Rich colors are used throughout. The physical maps are particularly good. Although a world atlas, the emphasis is on Europe.

New Zealand. Census and Statistics Office.

Maps of Urban Areas. Wellington. By Authority: R. E. Owen, Government Printer. 1952. 15 col. maps.

Maps show urban area boundaries as revised in 1951.

Reed, Alexander W.

Atlas of New Zealand. Wellington, A. H. & A. W. Reed. 1952. 64 p., maps (part col.) 25 cm. Price 12/6d.

Includes physical and economic maps in addition to regional maps which feature roads and railways. An illustrated section contains eight pages of pictorial, historical maps. The atlas is based on information supplied by the Lands and Survey Department.

Rodenwaldt, Ernst, ed.

World-Atlas of Epidemic Diseases. Welt-Seuchen Atlas. Part I, Sponsorship: Bureau of Medicine and Surgery, Navy Department, Washington, D.C. Hamburg, Falk-Verlag, 1952.

This first volume, covering Europe and the Mediterranean Basin, is part of a proposed "survey on a world-wide scale of the distribution of epidemic diseases and the search for relationships in time and place between disease prevalence or spread and geographical (including climatological) features."

Schou, Axel

Politikens Verdensatlas. København, Politikens Forlag, 1952. 64 p. text, 96 p. col. maps.

A general world atlas with maps and text in Danish. Maps are copyrighted by George Philip & Son. The index contains over 25,000 place names.

Society of the Divine Word.

Atlas Societatis Verbi Divini... A Statistical and Geographical Survey of all the Activities of the Society of the Divine Word. Editus a Henrico Emmerich. Mödling prope Vindobonam in Austria, Typis ad S.Gabrielem, 1952. 33 p. 20 col. maps (part fold). 32 cm. In Latin, German and English

Shows the activities of the Society in Europe, America, the Far East (eight maps are devoted to China) and part of Africa. Churches, seminaries, schools and missions are located and ecclesiastical boundaries delineated.

Warrington, John
Everyman's Atlas of Ancient and Classical Geography. Rev.ed. London, Dent, New York, Dutton, 1952. xii, 256 p. maps (part col.) 19 cm. Price 15/-d.
This revised edition of the atlas which was first published in 1907, is designed to assist the student of Greek and Latin authors, Biblical and early Christian history.

MAPS

Afghanistan, prepared for the United Nations Technical Assistance Mission of Afghanistan. Feb. 1953. Colored. 21 x 22 1/2 in. 1:2,000,000 (map no. 279.1)
Layer colors show relief. Roads, railways, other physical features, and boundaries are indicated. Inset map: Wakhan and Pamir.

[Africa, North]
Le Sahara des Nomades. France. Direction de la Documentation, 14-16 rue Lord-Byron, Paris 8 and Centre de Hautes Etudes d'Administration Musulmane, 13 rue du Four, Paris 6. Colored. 26 x 38 in. 1:5,000,000. (carte no. 58)
Shows the distribution of the nomads, the location of villages, markets, and mines, the distribution of camels, cattle, sheep and goats, and the direction of trade routes.

[Alaska]
Mount McKinley National Park. Washington, D.C. U.S.Geological Survey, 1952 (printed 1953). Colored. 20 x 36 in. 1:250,000. Available in both shaded relief and contour editions. Price 50 cents.
Shows trails and dirt roads. A sheet striking for its glaciers, mountain peaks and drainage pattern.

[America]
The Americas. New York, American Geographical Society, c1952. Printed by Army Map Service 5-53. Colored. 55 x 37 in. 1:12,500,000.
Relief is shown by hypsometric tints. Insets are titled: Moisture Regions; Natural Vegetation; Cities and Transport; and Agricultural Land Use.

[Anglo-Egyptian Sudan]
Ecological Map Showing Major Vegetation and Grazing Zones of the Anglo-Egyptian Sudan. Khartoum, Sudan Survey, September 1952. Colored. 19 x 12 in. 1:8,000,000.
Seven vegetation zones are distinguished. Five "Suggested Locations of Grassland Experimental Centres" are indicated.

[Australia]

Physical-Political Map of Australia, constructed by W. & A. K. Johnston, Ltd. Edinburgh and London, c1952.

Relief is shown by nine contrasting colors. Also shown are steamer routes and railways, Tasmania appears in an inset.

Austria, copyright by Bundesamt für Eich-und Vermessungswesen (Landesaufnahme), Wien, Austria, 1952. (first edition, United States Forces Austria, The Engineer, 1952). Colored. 30 x 47 in. 1:500,000.

Shows roads, railroads, boundaries, ferries, airports, churches, castles, ruins. Relief is portrayed by plastic shading. A 40-page gazetteer accompanies the map.

Burma, Malaya and Indo-China. Edinburgh, John Bartholomew & Son, 1953. Colored. 34 x 22 in. 1:4,000,000.

Relief is shown by layer colors. Roads, railways, canals and pipelines are indicated.

Europa, Eine Kultur-und Wirtschaftskarte. Herausgeber: O. Wommelsdorff and C. Schietzel, Graphische Gestaltung von W. Neufeld. Bergen, Müller & Kiepenheuer Verlog [1952] Colored. 32 x 40 in. No scale given.

A colorful pictorial map.

[France]

Carte Judiciaire de la France. Paris, Direction de la Documentation and Bureau de l'Organization Judiciaire, [1953] Colored. 28 x 32 in. 1:1,400,000 (carte no. 54)

Shows the location of various tribunals and the boundaries of legal districts. Insets cover Corsica, Departement de la Seine and "Juridictions Militaires".

Grönland (Greenland), prepared for Grönlands Fugle (Birds of Greenland) by the Geodaetisk Institut and Dr. Finn Salomonsen. Copenhagen, Ejnar Munksgaard, Ltd., 1951. Colored. 23 x 16 in. 1:5,000,000. Price Dan. Kr. 10.

Colors distinguish the high-arctic, low-arctic, and sub-arctic regions. Major and minor settlements, trading posts, outposts, mines, radio and meteorological stations, and boundaries are indicated.

[India]

Indian Union Showing Railway Systems. Bombay, Ondez (India), Box 6212, zone 10. [1952] Colored. 41 x 35 in. ca 1 :3,675,000.

Distinguishes broad, meter and narrow gauge systems of the following railroads: Central, Southern, Eastern, North Eastern, Western, and Northern.

[India]

Railway Map of India, corrected up to 31st May 1952. Survey of India, 1952. Colored. 41 x 35 in. 1:4,250,000.

Distinguishes 13 classes of railways.

(India)

Subcontinent Indien, Carte Economique. Published by Direction de la Documentation, 14-16 rue Lord-Byron, Paris. Colored. 26 x 32 in. 1:4,500,000. (carte no. 57)

Shows the distribution of 28 different industries, 18 minerals, and areas of production of 25 types of agriculture.

Ireland. Phoenix Park, Dublin, Ordnance Survey Office, 1953. Colored. 37 x 26 in. 1:500,000. Price 5/-d. net.

Relief is shown by layer colors. Railroads and classes of roads are indicated. Insets cover Dublin, Belfast and Cork.

Italie, Carte Economique. Published by Direction de la Documentation, 14-16 rue Lord-Byron, Paris. Colored. 30 x 26 in. 1:1,500,000 (carte no. 56)

Distinguishes zones of poor, average, and intensive agriculture. Locates numerous resources and industries. An inset shows "Densité de la Population".

(Latin America)

Map of Caribbean Oil. B. Orchard Lisle, 259 Majestic Bldg., Fort Worth 2, Texas, c1952. Colored. 37 x 49 in. 1:2,000,000.

Four color combinations show "Relative Petroliferosity Index". Also indicated are oilfields, refineries, pipelines, iron deposits, steel plants, railroads, concession areas, and tanker routes with distances. A marginal Key to Operational Companies identifies concession locations.

Mapa Geológico de España y Portugal. Published by the Instituto Geologico y Minero de España 3d. ed. 1952. Colored, 4 sheets when mounted together 41 x 52 in. 1:1,000,000.

Color combinations and symbols distinguish 26 geologic formations.

Mexico and Central America. Washington, D.C. National Geographic Society, cMar. 1953. Colored. 26 x 36 in. 1:3,500,000. Paper 50 cents, cloth $1.00. Accompanying index lists 5,967 place names. Index 25 cents.

One of the ever popular National Geographic maps. Shows principal railways, roads, Pan American Highway, canals, airports, ruins and passes. Elevations and depths in feet.

New Hampshire, Types of Agricultural Marketing and Production. (Chicago) J(ames Warren) Franklin, 1952, c1953. Colored. 13 x 9 in. 1:800,000.

Shows four types of production areas, marketing centers, and lines of market access. Two inset maps (1) New Hampshire, Farm Product Flow to other Urban Markets; (2) map of northeastern United States) entitled: Some Out-of-State Markets for Agricultural Products of New Hampshire.

Nordamerika. Bern, Kümmerly and Frey, c1953, colored. 45 x 34 in. 1:8,000,000. Legend is in German, French, English, Italian, and Spanish.

Shows political divisions, main roads, railroads, steamer routes and a number of physical features.

[Pakistan]

Pakistan Showing Political Divisions. 2d ed. Murree, Survey of Pakistan, 1953. Colored. 25 x 31 in. 1:3,168,000. Price: one rupee eight annas.

Shows international, provincial and district boundaries, main roads and railways. Three insets cover Pakistan and Surrounding Countries, East Pakistan, and Junāgadh and Manavadar.

[Pakistan]

Route Map of Pakistan. Murree, Survey of Pakistan. lst. ed. 1952. Colored. 20 x 28 in. 1:3,168,000. Price: one rupee unmounted.

Shows classes of roads and railroads. Main map covers West Pakistan. Insets are titled" 1) East Pakistan; 2) Junāgadh and Manavadar; 3) Pakistan and Surrounding Countries, Air and Sea Routes 1:45,000,000; and 4) Steamer Services in East Pakistan.

[Pennsylvania]

Heart of the Alleghenies, Central Pennsylvania's Vacationland. DuBois, Pa., S. A. King, 510 First St., c 1953. Colored. 20 x 24 in. ca 1:200,000.

This pictorial map shows classes of roads and railroads, county boundaries, scout camps, stocked trout and bass streams, game lands, refuges, state parks and forests, airfields and golf courses.

Puerto Rico e Islas Limitrofes. Compiled by U. S. Geological Survey. Distributed by Dept.of the Interior, Puerto Rico. 1952. Colored. 16 x 52 in. 1:240,000.

Shows five classes of roads, public and private, and military airports. An inset shows Distritos Senatoriales Contours indicate relief. This same map is available in a striking shaded relief edition.

[Oceania]

Political Map of Oceania & Indonesia Showing Territories & Sphere of Influence of Each Nation. Sydney, H.E.C. Robinson, 221-3 George St. [1952] Colored. Two sheets, 39 x 59 in. when mounted, ca 1: 11,750,000.

Principal products, mail and trade routes are indicated.

[Spain]

Mapa de las Instalaciones de Producción, Transporte y Subestaciones de Transformación de Energia Electrica. Madrid, Dirección General de Industria, May 1952. Colored. Four sheets each 31 x 37 in. 1:750,000.

A detailed map on electric power in Spain.

[Switzerland]

Die Weine der Schweiz, Les Vins de la Swisse, I Vinni della Svizzera. Berne, Kummerly & Frey [1952] Colored. 22 x 30 in. No scale given.

A striking map which shows relief by shading and indexes the wine regions.

[United States] Copyright by Jeppesen & Co., Denver, 1953. Colored. 34 x 55 in. ca 1:3,480,000. No overprint.

Another issue: United States of America, the Jeppesen Natural Color Map Series. Colored 34 x 55 in. Black overprint with boundaries and place names. "This map series introduces a dramatic new principle of

cartography. All mountains, valleys and other features are shown in their true shapes and positions just as they actually appear on the ground. Color and modeling are used to show the actual distinctive appearance of the ground and ground-cover rather than to indicate elevation zones. The topography is based on the latest physiographic surveys augmented by original aerial color photography and research."

(United States)

Official Hearne Brothers Map of the United States. Detroit. c 1953. Colored. 44 x 64 in. ca 1:3,000,000.

A political wall map. An index sheet contains separate lists of county and city names.

(United States) County Boundaries as of April 1, 1950. U. S. Bureau of the Census. Washington, D. C., Govt Print. Off, 1952. 24 x 38 in. 1:5,000,000. 30 cents.

A new edition of this official map based on the 1950 Census.

(United States) Minor Civil Division (maps for each State, Alaska, Hawaii, and Puerto Rico. 1950 Census (U.S. Bureau of the Census. Washington, D. C., Govt. Print. Off., 1952. Sheet size 36 x 48 in. Scales vary. 20 cents per sheet.

Official maps based on the 1950 Census.

United States, Population Distribution, Urban and Rural: 1950. U. S. Bureau of the Census. Washington, D. C., Govt. Print. Off., 1953. Colored. Two issues: 24 x 38 in. 1:5,000,000; 38 x 40 in. 1:3,200,000.

Under urban population are distinguished: 1. Urbanized areas (showing extent of each area), 2. Places of 25,000, 3. Places of 10,000 to 25,000, and 4. Places of 2,500 to 10,000. Under rural population two categories are shown 1. Places of 1,000 to 2,500, and 2. 500 persons (outside places of 1,000 or more).

(United States)

Population Centers of the U.S.A. Showing Urban Places of 2,000 and Over. Part I, Northeast Section. 18 x 30 in. Part II (U. S. exclusive of Northeast Section) 32 x 43 in. Designed and prepared by Richard A. Rice, Jr. and John S. Gallagher, Jr. Based on 1950 U. S. Census. Copyright 1953 by the Greyhound Corp.

Squares represent metropolitan centers (the key point of a group of communities); "double squares" indicate trunk centers (a key metropolitan center and focal point for several metropolitan centers); circles indicate other cities and towns. The area of the circle or square is roughly proportional to the population.

(United States)

Map of the United States showing location of drained agricultural lands: 1950 by U. S. Bureau of the Census. Washington, D. C. Govt. Print. Off. 1952. (Seventeenth Census of the U. S. : 1950) For sale by Supt. of Documents, 30 cents. Colored. 20 x 32 in. 1:7,000,000

Shows the land in drainage enterprises, drained land in irrigation enterprises. Size of the enterprises is indicated by "larger dot equals

5,000 acres; smaller dot equals 500 acres."
(United States)

Location of Irrigated Land, 1949; 17 Western States and Arkansas, Louisiana and Florida. U. S. Bureau of the Census. Washington, D. C., U. S. Govt. Print. Off., 1952. Colored. 36 x 48 in. ca 1:3,300,000.

Part of the U. S. Census of Agriculture.
(United States)

Congressional Districts for the 83rd Congress. U. S. Bureau of the Census. Washington, D. C., 1953. 27 x 42 in. on sheet, 58 x 42 in. 1:5,000,000. 53 inset maps on sheet.

An excellent official map which shows Congressional districts. The insets give detailed divisions in metropolitan areas.
(United States)

Treasure Map of the United States."Drawn expressly for Victoria by R. G. Enterprises,"3336 Boudinot Avenue, Cincinnati. Copyright R. T. Grumman 1952. 26 x 41 in. cal:5,000,000.

Presents a "wealth" of information but gives a cluttered appearance.
(United States)

Historical Map of the United States. Washington, D.C., National Geographic Society, June 1953. Colored. 26 1/2 x 41 in. 1:5,000,000. Price 50 cents on paper, $1.00 linen; index 25 cents.

Published in honor of the 150th anniversary of the Louisiana Purchas this map contains 912 notes on the history of our country. To accommodate the multitude of place names and notes the Eastern Seaboard is enlarged in two insets. A 28 - page index with 3,508 place names and a history of the purchase accompanies the sheet.

Virginia Mineral Resources, prepared by Byron N. Cooper and Richard V. Dietrich, Department of Geology, Virginia Polytechnic Institute. (Blacksburg, Va.) Virginia Engineering Experiment Station. 1953. Colored. 28 x 60 in. 1:500,000. $1.00.

Shows the occurrence of 32 minerals and the location of mineral industries. The minerals are listed and described in the left margin. The right margin contains a diagram of physiographic provinces, a circle graph "Percentage Distribution of Mineral Production," And a bar graph "Mineral Production, value in millions of dollars".
(World)

Columbus Weltwirtschaftskarte. Bearbeitet von W. Kaden. Berlin and Stuttgart, Columbus Verlag Paul Oestergaard K.G. (1953) Colored. 2 sheets. 50 x 65 in. when mounted. 1:25,000,000.

A colorful economic wall map which shows agricultural and mineral products, industries, transportation and land types.
(World)

Immigration Quota Areas according to the Immigration and Nationality Act of the United States. (Washington, D.C.) U.S. Department of State. 2nd rev. 12-1952. Colored. 10 1/2 x 38 in. 1:60,000,000. (map no. 11438) for sale by U.S.Superintendent of Documents. 20 cents.

On verso: Asia-Pacific Triangle provided for in Sec. 202(b) of the Act and explanation, "Boundaries of Certain Quota Areas". This map illustrates the contraversial immigration act.

(World)

Map of the World published by Jeppeson and Company, Denver. c1953. Colored. 32 x 58 in. 1:31,806,720. (Jeppesen Natural-Color map series)

Uses a new technique of cartography. Color and shading are used to show the actual appearance of the ground-cover. Map is available without black overprint.

(World)

Point 4 Around the World. Technical Cooperation Administration, Department of State, Jan. 1953. Colored. 28 x 34 in. No scale given.

Lines radiate from the map to the borders where the countries are named and the types of aid indicated (1. agriculture, 2. education, 3. health and sanitation, 4. resource development, industrial and other technical services.)

(World)

Marine Climatic Chart prepared by the U.S. Weather Bureau and the Hydrographic Office. April 1953. Colored. 14 x 24 in. on sheet 26 x 38 in. 1:70,000,000. On verso: Pilot Chart of the Indian Ocean.

Shows tropical and extratropical cyclones, fog, haze, and ice. Two insets show "Generalized pattern of primary air masses and fronts (superimposed on pattern of prevailing winds)" 1. January-February, 2. July-August.

(World)

Distribution of Leprosy 1952. New York, American Geographical Society, c1953. Colored. 23 x 36 in. 1:37,500,000. (Atlas of Disease, plate 7).

Nine color combinations distinguish the prevalence of leprosy (rates per 1,000 inhabitants). Leprosaria are located and generalized limits of populated areas are outlined. Also indicated on the map are foci (rates unknown) and "no data". On the verso there appears a list of towns in which leprosaria are located and a list of foci, plus a selected bibliography.

(Wyoming)

Physiographic Map of Wyoming by S. H. Knight, 310 S. 10th Street, Laramie, c1953. 31 x 40 in. No scale given.

An index to the diagram appears in the margin.

NEWS FROM GEOGRAPHIC CENTERS

INDIANA UNIVERSITY

J. Edwin Becht, until recently on duty at the Pentagon Building, has been appointed Assistant Professor. Eric H. Brown, physical geographer at University College, London, will substitute for R. L. Gentilcore (recently promoted to Assistant Professor) who will lecture at University College. Herbert L. Gaede, who has been at Indiana for two years, is returning to Northwestern to complete his Ph.D. S. Earl Brown and S. Mookerjee (Geographer at University of Nagpur, India) have been appointed teaching associates for 1953-54. Louis DeVorsey has been awarded a Fellowship by the Graduate School.

Increasing interest in conservation within the State is reflected in a workshop in Conservation Education held on the Indiana University campus during Summer Session 1953. A conservation course is required for Indiana licenses for high school teachers in biology and home economics and will probably be required for all elementary certificates in the near future.

Norman Pounds has published two volumes during the year: the Ruhr, and Europe and the Mediterranean. S. S. Visher's Climatic Atlas of the United States will be published by Harvard University Press with financial assistance from the American Meteorological Society.

THE UNIVERSITY OF NEBRASKA

Colbert C. Held has been granted one year's leave of absence, beginning September 1, 1953, to teach in the European program of the University of Maryland. He will be stationed at five military installations out of the 93 that conduct classes in the Maryland program. He has been given a grant by the University of Nebraska Research Council to conduct research in Europe while he is there. His place will be taken for the year by Gunnar Alexandersson of the Stockholm School of Economics, who as Visiting Professor, will teach cartography, economic geography, and Europe. Mr. Alexandersson will continue his study of the industrial structure of American cities.

Frank E. Sorenson, lecturer in geography and Director of the Summer Sessions has returned to the University after a year's leave of absence to serve as Director of the Educational and Technical Staff, Technical Cooperation Administration, Department of State, Washington, D.C.

Wellby R. Stevens, United States Weather Bureau, has replaced Ray Dyke (retired) as lecturer in meteorology.

Andrew Aandahl, Soil Analyst Great Plains States, Soil Conservation Service of the U.S. Department of Agriculture, is serving as lecturer in geography of soils since the resignation of James Thorp.

N. R. Diffenderfer, Kearney State Teachers College, is serving as part-time instructor.

Esther S. Anderson, Robert G. Bowman and Leslie Hewes, continue

in residence. Nels A. Bengtson, professor and dean, emeritus, continues to serve in an advisory capacity and as a member of doctoral committees.

OREGON STATE COLLEGE — The Department of Natural Resources is pleased to announce the promotion of Oliver H. Heintzelman to Associate Professor of Geography effective September 1953. Dr. Heintzelman has served since January 1949. His principal responsibility will continue to be introductory geography offerings. In addition, one-third of his time will now be devoted to work in the Department of Natural Resources with special emphasis on the resources of forest, range and recreation. He will offer graduate level studies in the spring term of each year. Emmett J. Hyde will join the staff for the 1953-54 year in the place of W. G. Myatt who will be on sabbatical leave. Mr. Hyde will specialize in economic geography and in the regional geography of North America.

(The announcement in the July issue of The Professional Geographer of graduate assistantships in geography was partly in error. The assistantships are in the Department of Natural Resources. The Editor.)

UNIVERSITY OF TORONTO — William C. Wonders has been appointed Assistant Professor of Geography at the University of Alberta at Edmonton and will take up his duties this fall upon his return from his tour of Western Europe. He and Mrs. Wonders went over in time for the Coronation and are touring Europe in a new car purchased in England.

George Tatham is lecturing to the Canadian Army Summer Course at Royal Military College, Kingston, Ontario.

D. F. Putnam was appointed Head of the Department of Geography, taking over those duties on July 1, 1953. He spent part of the summer travelling in Eastern Canada.

D. P. Kerr has returned from a brief trip to British Columbia to take charge of the Geography summer course for teachers at the University of Toronto. He is assisted by Jacob Spelt.

J. H. Richards, formerly of the University of Manitoba, has been appointed to the staff of the Department of Geography, University of Toronto.

UNIVERSITY OF WASHINGTON — Geography faculties and students from Central, Western and Eastern Washington Colleges of Education were guests of the department in late May. In addition to conferences, there was a tour of the Seattle commercial-industrial waterfront by boat. John Morrison was Walker Ames Professor in geography during the spring quarter, lecturing on the U.S.S.R. He was the featured speaker at the quarterly Symposium on World Affairs.

At the North Mexican Center for Anthropology, La Pas, Baja California,

are William C. Massey, Instructor, Willis R. Heath, cartographer, and Robert C. Barnard, Graduate Student.

Edward Ullman participated in the annual meeting of the American Institute of Planners in San Francisco and in the meeting of the Social Science Research Council in Berkeley in June. Marion E. Marts received a Graduate School Research Grant for the study of techniques for measuring the impact of large-scale reclamation projects, specifically oriented to the Columbia Basin Project. William L. Garrison will return to the department this fall after spending a year on the Big Ben Project, University of Pennsylvania. The department was represented at the annual meeting of the A.P.C.G. in Santa Barbara by Frances Earle, Donald Hudson, Howard H. Martin, and Edward Ullman. In addition to peesenting a paper at that meeting, Frances Earle recently appeared on radio and television programs.

During the spring quarter a group of students, directed by John Sherman, completed the 3-color relief shading of a map of the Pacific Northwest (using twelve 1:500,000 Aeronautical sheets) which will be permanently mounted in the department. Sherman also introduced a new course, "Methods in Map Reproduction". He also served as director of the summer field course at Friday Harbor in the San Juan Islands. T.M. Griffiths of the University of Denver was associate director.

Three Ph.D. candidates completed their work during the summer session: Donald W. Meinig, University of Utah; John O. Dart, Portland State College; Keith W. Thomson, University of Adelaide.

AMERICAN GEOGRAPHY
INVENTORY & PROSPECT

This book will be available in late 1953 or early 1954. Advance orders are being accepted at the Central Office, The Library of Congress, Washington 25, D.C. The price is $6.00

PERSONAL NEWS

AKIN, Wallace, Ph.D. Northwestern University, has been appointed head of the Department of Geography and Geology at Drake University. He taught during 1952-53 at the University of Illinois in Chicago, and during the past summer has been employed on a research project sponsored by the federal government and Northwestern University.

CUNNINGHAM, Floyd, is on leave of absence from Southern Illinois University, for 1953-54 and holds a Fulbright appointment to Egypt.

GEPPERT, Otto E., General Manager of the Denoyer-Geppert Company, recently visited the important map-making establishments in Belgium, England, France, Luxembourg, Switzerland and Western Germany. He also visited American schools set up for dependent children by the U.S. Army and gave talks on globe and map construction and use in the classroom.

GERLACH, Arch C., was elected chairman of the Geography and Map Division of the Special Libraries Association 1953-55.

GOODMAN, Mrs. Marie C., Library of Congress, as chairman of a Special Libraries Association Committee on Map Resources, is completing an inventory and annotated list of some 500 significant map collections in the U.S. and Canada. The results of this study will be published by the Special Libraries Association.

HARRIS, Phillip Marshall, is now the owner-manager of the Daniel Smith Company, map-makers and publishers, in Denver, Colorado.

McCUNE, Shannon, is on leave of absence from Colgate University for 1953-54 to serve as a Visiting Professor of Geography at Tokyo University. Arrangements were recently completed whereby Mr. McCune becomes the Editor for Maps of Asia for the Denoyer-Geppert Company of Chicago.

HITCHCOCK, Charles B., has been named Director of the American Geographical Society.

Reviews tell the story of

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Journal, Florida Engineering Society

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